

NPIC/

8 OCT 1970

MEMORANDUM FOR: Director, National Photographic  
Interpretation Center

SUBJECT : Proposed Contract [redacted]  
[redacted] to Provide Optical Services at  
a Cost of [redacted] from FY-1971 R&D Funds

1. This memorandum requests approval for the commitment of funds for a contract. The specific request is stated in paragraph 7.

2. Throughout the R&D contractual process and the execution of in-house research projects involving photo-optical systems, complex theory needs to be explained and physical standards and acceptance criteria specified. Frequently, due to the uniqueness of the system involved, the assistance of specialists in the field is required. This assistance is of three general types: (1) equipment calibration, (2) consultation in connection with technical evaluation of proposals and contractual reports, and (3) scientific support of in-house research projects, where expert analysis and experimentation is often essential to the application of advanced theoretical concepts.

3. The Image Optics and Photographic Section [redacted] met these needs in FY-69 and FY-70. In the latter fiscal year, their principle contributions included:

a. In response to a Systems Research Branch request, [redacted] performed an evaluation of a proposal to build a white-light, high-resolution, laser, rear-screen projector. Their analysis pointed up several theoretical and practical points that the proposal had not covered adequately and, in this case, demonstrated that the claims made for the equipment were not justified.

b. In reply to a request generated by IEG, the quantity of UV radiation emitted by the [redacted] light table was measured and reported upon.

GROUP 1  
Excluded from automatic

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SUBJECT: Proposed Contract with [ ]  
[ ] to provide Optical Services at  
[ ] from FY-1971 R&D Funds

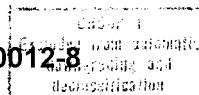
c. In the area of photometric standards, [ ] calibrated 6 precision photoelectric meters especially adapted for measurement of light table illumination. This action provided a known reference for use by the Maintenance Branch and Test and Evaluation Branch personnel.

d. In response to requirements generated by the Imagery Technology Laboratory image evaluation program, [ ] undertook three studies, each involving preliminary laboratory experimentation. The first study demonstrated the feasibility of an automated interferometric lens testing device. The cost of this project was approximately [ ]. Similar studies proposed by commercial firms were estimated to cost at least [ ]. The other two studies were concerned with the characteristics of film graininess or noise, and the theory of resolution in coherent light. Both projects have direct application to the problems of specifying photographic image quality, and their results will contribute to future projects in this area.

4. The proposed contract is a continuation of past efforts and consists of three tasks: (1) precise calibration of laboratory standards and equipment, (2) technical consultation, and (3) photo-optical system performance standards. The first two tasks will be accomplished on demand as in the case of the light table UV measurements; the cost is estimated at [ ]. The third task represents an extension of the three research studies begun in FY-70: (1) variation of resolution with specialized light sources [ ], (2) design and calibration of a semiautomatic lens testing device [ ] and (3) experiments with grain noise as it varies with exposure [ ]. [ ] has been allowed for unexpected requirements in connection with tasks one and two above. The risk associated with these projects is very low. Deliverable items include final reports, reports on each individual task, and the design data for a semiautomatic lens testing device.

5. This is a follow-on contract and, in view of satisfactory previous performance and unique abilities of the [ ] no other contractors were considered.

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6. Successful completion of the contract, in addition to providing necessary services, will assist substantially in the assessment of imaging systems and provide data necessary to the Center's comprehensive image evaluation program. Follow-on work in the areas involving consultation and proposal review is likely. Further work on the other projects cannot be anticipated at this time. The cost of these services cannot yet be estimated.

7. It is requested that a contract with [redacted]  
[redacted] to conduct the program described at a cost not to exceed [redacted] from Category III FY-1971 R&D Funds be approved. It should be noted that the [redacted] limit is [redacted]. The difference is due to a reduction in the [redacted] suggested by [redacted] as a reserve for unexpected problems. Experiences indicate that a smaller reserve fund will be adequate.

[redacted]  
Chief, Technical Services Group,  
NPIC

Attachments:

1. Proposal
2. Form 2420

APPROVED: [redacted]

ARTHUR C. LUNDAHL  
Director

National Photographic Interpretation Center

Date

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